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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,725	10/17/2003	Takanori Takeda	4041K-000158	3286
27572	7590	05/12/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			LU, JIPING	
P.O. BOX 828			ART UNIT	
BLOOMFIELD HILLS, MI 48303			PAPER NUMBER	
			3749	

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/687,725	Applicant(s) TAKEDA, TAKANORI	
	Examiner Jiping Lu	Art Unit 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION***Claim Rejections - 35 USC § 103***

1. Claims 1, 3, 4, 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al. (U. S. Pat. 5,289,968) in view of Nonomura et al. (U. S. Pat. 6,600,137) and Watanabe et al. (U. S. Pat. 5,823,767)..

Maeda et al show a controlled atmosphere furnace 1 (Fig. 1) with a conveyor device 51-58 for continuously transporting articles 100 to be heated or brazed. The furnace 1 includes a preheating chamber 13 and a heating or brazing chamber 14. Atmosphere shutter chamber 21, 23, 31, 33 disposed forward and rearward of the brazing chamber 14 to prevent atmosphere gas in the brazing chamber 14 from escape. However, Maeda et al. does not show the article conveyed through the heating chamber being quickly heated by the re-circulating hot gas through circulation duct by a fan in a closed loop at a predetermined temperature and a furnace with a gas burner for heating the re-circulated gas. Nonomura et al show a heating device with article 2 conveyed through the heating chamber 1 being quickly heated by the re-circulating hot gas 14 through circulation duct 13 by a fan 12 in a closed loop 1a at a predetermined temperature. Watanabe et al. teach a furnace with a gas burner b for heating the re-circulated gas same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the preheating chamber 13 of Maeda et al with a closed loop re-circulation quick heating gas as taught by Nonomura et al and to provide the furnace of Maeda et al. with a gas burner to heat the re-circulated gas as taught by Watanabe et al. in order to improve heating efficiency. With regard to claims 4, 6 and 9, the claimed numerical values

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are deemed to be obvious matter of design choice which produces in absence of any new or unexpected results over the prior art references. For example, the speed in Maeda may be controlled in any manner as one desires.

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al. (U. S. Pat. 5,289,968) in view of Nonomura et al. (U. S. Pat. 6,600,137) as applied to claim 1 above, and further in view of Sustarsic et al. (U. S. Pat. 3,984,289).

The furnace of Maeda et al. as modified by Nonomura et al. as above includes all that is recited in claim 5 except for metallic curtains. Sustarsic et al. teach a coke quencher car apparatus with a plurality of metallic curtains 61a for closing the compartment opening. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the furnace of Maeda et al. with metal curtains as taught by Sustarsic et al. in order to improve the furnace heat treatment efficiency.

Response to Arguments

3. Applicant's arguments filed 4/4/2005 have been fully considered but they are not persuasive to overcome the rejection. First, the broad apparatus claims failed to structurally define over the prior art references. Please point out from the claims exactly which structural limitation that the prior art references do not teach or show. Second, the examiner would not give any patentable weight to the added flux coating on the article to be treated in apparatus claims. Moreover, the Maeda et al patent does show such flux coating on the article to be treated. Third, the applicant argues the importance of the invention regarding the flux coating is heated by combustion gas burner in the gas burner. The oxygen concentration in the preheating

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chamber can be reduced and deterioration of the flux as well as the growth of oxide layer can be suppressed. However, no such limitations are found in the broad apparatus claims and the broad method claims. The method claims do not even require any combustion gas burned by a burner. This line of arguments is not germane to the claims at issue. The applicant must focus on the claim limitations when rebutting the examiner's rejection. Finally, one must recognize that the patent to Maeda et al shows a controlled atmosphere furnace 1 (Fig. 1) with a conveyor device 51-58 for continuously transporting flux coated articles 100 to be heated or brazed. The furnace 1 includes a preheating chamber 13, a heating or brazing chamber 14, atmosphere shutter chamber 21, 23, 31, 33 disposed forward and rearward of the brazing chamber 14. The patent to Nonomura et al shows a heating device with article 2 conveyed through the heating chamber 1 being quickly heated by the re-circulating hot gas 14 through circulation duct 13 by a fan 12 in a closed loop 1a at a predetermined temperature. The patent to Watanabe et al. teaches a furnace with a gas burner b for heating the re-circulated gas same as claimed. Therefore, in view of the combined teaching of the references one skilled in the art would be able to provide the preheating chamber 13 of Maeda et al with such closed loop re-circulation quick heating gas and provide the furnace of Maeda et al. with a gas burner to heat the re-circulated gas in order to improve the heating efficiency.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

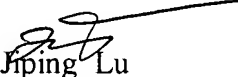
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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jiping Lu whose telephone number is 571 272 4878. The examiner can normally be reached on Monday-Friday, 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 571 272-4877. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jiping Lu
Primary Examiner
Art Unit 3749

J. L.